

Engineering has reviewed the plans for the Lakeside Reserve project submitted January 26, 2016 and have the following comments:

Stormwater Management Permit Application Form:

1. Please make sure that the Total Onsite Newly Constructed Impervious Surface square footages listed on page 3 of the SWMP Application match the impervious square footages listed in the Impervious Calculations on sheet C-2.0 of the plan set.

Wet Detention Basin Supplement:

2. The drainage area entered under Site Characteristics doesn't match the drainage area listed for BMP #1 on page 4 of the SWMP Application. Please clarify.
3. The Impervious area, post development square footage and the Total Impervious Area listed on page 4 of the SWMP do not match up. Please clarify.
4. The % impervious listed on the supplement does not match the Percent Impervious Area (%) listed on page 4 of the SWMP Application.
5. There appears to be a discrepancy regarding the bottom of pond and sediment storage between the supplement, the O&M and the stage-storage calc. Please make sure the pond cross section reflects the correct elevations as well.
6. There appears to be a discrepancy regarding the permanent pool surface area between the supplement and the NCDENR Wet Retention Basin Requirements Worksheet. Please clarify.
7. Please make sure all relevant line items are filled out on the supplement, drain mechanism, vegetated shelf width, drawdown calculations, etc.

Plans:

8. Please add Newly Constructed Offsite Impervious Area square footages to sheet C-2.0 of the plan set.
9. The Forebay and Main Pond Section detail on sheet C-4.2 does not accurately reflect the design in plan view of the pond. Please correct.
10. Revise sheet C-3.0A to reflect the revised pre-da #1.
11. Please revise the inlet drainage area map. It does not match the post-developed drainage area boundaries.
12. Add the City standard detail for sidewalks to the plans.
13. Please provide a detail for the 5' mulch trail. The mulch trail is shown to go across the emergency spillway. Please address.

Calculations:

14. Please submit pond routing calculations to support the recently submitted Proposed Stormwater Control Measures narrative.
15. Please revisit the Lakeside Reserve NCDENR Wet Retention Basin Requirements worksheet with the correct Total Drainage and Impervious Drainage Areas.
16. Please verify and resubmit the average depth calculation. Using the stage-storage calculations provided to solve for Option #2 for average depth does not yield an average depth of 3.5 feet. Please see Figure 10-2b of the NCDENR Wet Detention Basin Supplement for definitions of the terms used in the Option #2 equation.

17. Please explain why the seasonal high water table elevation has not been addressed in the design of the wet detention pond. Please use the stormwater narrative as the vehicle to explain.
18. HydroCAD - There appears to be a discrepancy with the pre-developed area for subcatchment 1S and the post-developed area for subcatchment 2S. Please revise.
19. HydroCAD – There appears to be a discrepancy between the slope of the outlet pipe between the HydroCAD information and the cross section on sheet C-4.2. Please revise.
20. **Note only** – The 2-year, 10-year, 25-year and 100-year 24-hour rainfall inches are listed in the HydroCAD model as 4.60, 7.10, 8.10 and 10.20 inches, respectively. The TSSM on page 5-16 lists the depths as 4.50, 6.72, 8.01 and 10.00. Consider revising if these depths help in achieving design requirements.
21. City code requires attenuation of the 2-year storm. The 2-year post-development flow rate is not equal to or less than the 2-year pre-development flow rate. Please revise design to meet pre/post requirement.
22. The landscape plan does not comply with Item (g) of the City TSSM. The 5' landscape buffer cannot be measured from the water line to the top of bank. The 5' landscape buffer must begin at the top of bank and measure outwards. Also, please show how the landscaping of the stormwater facility complies with SD 15-16 of the TSSM.
23. Please provide time of concentration calculations to support the time of concentration listed on sheet C-3.0B.
24. Please provide energy dissipater calculations to the calculations.
25. Please submit one full set of calculations.

These comments will create associated changes throughout the stormwater submittal package. Please make the necessary associated changes.

Please submit one full set of plans and calculations, the stormwater narrative, application, supplement and any other revised supporting documentation to Engineering for additional review. Please call or email if there are any questions. Thank you.